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IN CONJUNCTION WITH THE SURFACE WATER QUANTITY STUDY, THE MANAGEMENT SYSTEMS CONTROL OFFICE AT RMA UNDERTOOK A WATER QUALITY INVESTIGATION OF THE SOUTH PLANTS AREA RUNOFF. IN THE LATE SPRING OF 1983, NINE WATERSHEDS WERE DEFINED AS THE EXIT PATHS FOR STORM RUNOFF. SAMPLES WERE DRAWN MAY THROUGH JULY 1983, DURING OR IMMEDIATELY FOLLOWING SNOWMELT OR RAINFALL. ALL SAMPLES WERE SAMPLE GRAB SAMPLES TAKEN AT THE OUTFALL OF MAJOR CULVERTS REPRESENTING THE DISCHARGE POINT FROM EACH OF THE NINE WATERSHEDS. ALL ANALYSES WERE PERFORMED BY THE RMA LABORATORY.

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SURFACE WATER QUALITY STUDY OF THE SOUTH PLANTS AREA

DATA REPORT

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JULY 1983

SURFACE WATER QUALITY OF THE SOUTH PLANTS AREA

BACKGROUND

In conjunction with the Surface Water Quantity Study, the Management Systems Control Office at the Rocky Mountain Arsenal undertook a water quality investigation of the South Plants area runoff. In the late spring of 1983, nine watersheds were defined as the exit paths for storm runoff. Figure 1 designates the nine watersheds and the associated sampling points. (A tenth watershed as shown was defined near the end of the study. It will be sampled during any continuing efforts). Table 1 lists the acreage of each watershed.

SAMPLING METHODS

Samples were drawn May through July 1983 during or immediately following snowmelt or rainfall events. All samples were simple grab samples taken at the outfall of major culverts representing the discharge point from each of the nine watersheds. Due to the infrequent runoff events in watersheds 7 and 8, buckets were hung at the outfall pipes at mid-study to insure a sufficient volume would be available for analyses.

Six sample containers were filled at the sites after each storm event: two- 40 ml volatile vials, two- 250 ml plastic bottles, and two- 1000 ml amber glass bottles. A single sample from a plastic bottle was filtered and acidified for metals analyses. All samples were refrigerated upon returning to the laboratory.

SAMPLE ANALYSES

All analyses were performed by the Rocky Mountain Arsenal laboratory. The standard procedures documented at the laboratory were followed for the quantitative analyses and quality control. The list of compounds included in the analyses are found in Table 2.

DATA PRESENTATION

At least three rounds of sampling and analyses were completed at each site. Five rounds were completed at most sites. Additional samples are presently under analysis to complete five rounds per site. Raw laboratory data and analyses status are presented in Appendix A of this report. The site identifiers for the surface sites are six digit alpha-numeric strings. The first two digits are SS representing the program: surface sample; the next three digits represent the site number: 001=site 1; and the last digit represents the storm event sequentially.

Table 2 is a summary of data available to date. The table is arranged by site and compound. Water quality trends are indicated in the table based on the limited data base. The matrix contains three entries: X representing high concentrations of the compound present, T-trace for compounds in concentrations just above the detection level; and blank where no

indications of the presence of the compound. Dithiane was not detected in any watershed. From available data the following inorganic compounds were within reasonable range of normal background levels: calcium, magnesium and fluoride. There is a laboratory backlog of all analyses for arsenic, mercury and cadmium, and some backlog of the other inorganics.

The Shell Chemical Company letter report of July 18, 1980 is offered in Appendix B as additional surface water quality data from the South Plants area.

CONCLUSIONS

The following conclusions may be drawn:

a. None of the nine watersheds tested are free from residues from production activities. All sites contain compounds in the surface runoff which at some level pose a health risk.

b. The Shell Chemical Company letter report confirms the presence of many of these compounds. Although the test methods and compounds analyzed are not always the same, both the Rocky Mountain Arsenal 1983 data and the Shell Chemical Company 1980 data indicate significant levels of compounds in the surface waters exiting the South Plants area.

c. Alternatives to control and/or treat the surface water flows must be considered since the outfalls discharge into ditches leading to surface waters covered in the Memorandum of Agreement.

d. Watershed discharge culverts 7 and 8 are presently actively adding small amounts of chlorinated hydrocarbon pesticides to Lower Derby Lake via the South Plants cooling loop return ditch.

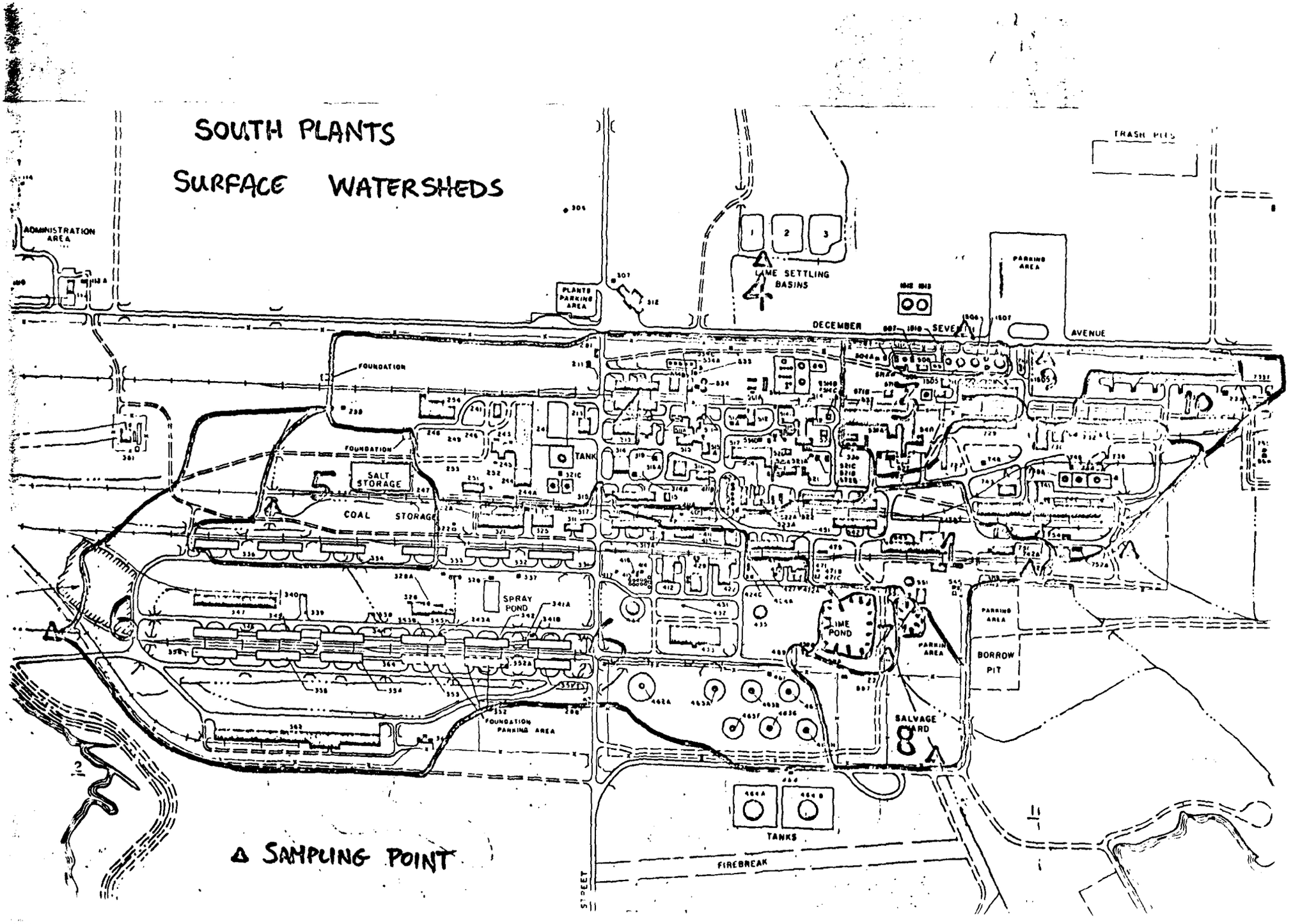
SOUTH PLANTS
SURFACE WATERSHEDS
ADMINISTRATION AREA
PLANTS PARKING AREA
LIME SETTLING BASINS
TRASH PITS
PARKING AREA
DECEMBER
AVENUE
FOUNDATION
SALT STORAGE
TANK
COAL STORAGE
SPRAY POND
LIME POND
BORROW PIT
SALVAGE YARD
FOUNDATION PARKING AREA
TANKS
FIREBREAK
STREET
Δ SAMPLING POINT

Table 1

WATERSHED ACREAGE
(AREA, in acres)

Watershed 1	7.36
Watershed 2	16.79
Watershed 3	10.89
Watershed 4	53.35
Watershed 5	18.94
Watershed 6	99.15
Watershed 7	2.53
Watershed 8	11.32
Watershed 9	7.89

Table 2

WATER QUALITY TRENDS

	WATERSHED NUMBER								
	1	2	3	4	5	6	7	8	9
DBCP - Nemagon				X					
DCPD - Dicyclopentadiene				X					
DIMP - Diisopropylmethylphosphaonate									T
CPMSO - Sulfoxide				T					
CPMSO2 - Sulfone				X					
ALDRN - Aldrin	X	T		X	X	X	X		T
ISODR - Isodrin				X	T	X	X	T	T
DLDRN - Dieldrin	X	X	T	X	X	X	X	X	X
ENDRN - Endrin	X	T	T	X	T	X	X		X
CHCL3 - Chloroform	T	X	T	X	T	T	X	X	T
CCL4 - Carbontetrachloride				T					
C6H6 - Benzend	T	X	T	X	T	X	T	T	
CLC6H5 - Chlorobenzenes				X	X				
MEC6H5 - Toluene				X	T				
MIBK - Methylisobutylketone				X	X	T	X	T	
XYLEN - Xylene				X	T				
TRCLE - Trichloroethylene				X					
TCLEE - Tetrachloroethlylene				X					
BCH - Bicycloheptadiene				X					
CL - Chloride			T						
CUTOT - Total Copper			T				T	T	

APPENDIX A

ER UMBER	IDENT-IFIER	LAB NUMBER	COLL. DATE	TEST DATE	TEST NAME	METH	BOL	VALUE	UNITS	QC PROGRAM
0348	SS0010	A30569	83140	83144	DBCP	Ri	LT	.2	UGL	...QUAN
				83143	DCPD	Ti	LT	1	UGL	...NOQC
				83145	DIMP	Ri	LT	10	UGL	...QUAN
				83153	DITH	Ri	LT	20	UGL	...QUAN
				83153	CPMSO	Ri	LT	20	UGL	...QUAN
				83153	CPMSO2	Ri	LT	20	UGL	...QUAN
				83145	ALDRN	Ri	LT	.2	UGL	...QUAN
				83145	ISODR	Ri	LT	.2	UGL	...QUAN
				83145	DLDRN	Ri		.48	UGL	...QUAN
				83145	ENDRN	Ri	LT	.2	UGL	...QUAN
				83143	CHCL3	Ti		1	UGL	...NOQC
				83143	CCL4	Ti	LT	1	UGL	...NOQC
				83143	C6H6	Ti		1	UGL	...NOQC
				83143	CLC6H5	Ti	LT	1	UGL	...NOQC
				83143	CL2BZ	Ti	LT	1	UGL	...NOQC
				83142	MEC6H5	Ti	LT	1	UGL	...NOQC
				83142	MIBK	Ti	LT	5	UGL	...NOQC
				83143	XYLEN	Ti	LT	.1	UGL	...NOQC
				83143	TRCLE	Ti	LT	1	UGL	...NOQC
				83143	TCLEE	Ti	LT	1	UGL	...NOQC
				83143	BCH	Ti	LT	1	UGL	...NOQC
				83166	CA	Ri		10.6	MGL	...QUAN
				83146	MG	Ri		1.3	MGL	...QUAN
				83145	F	Ri		.27	MGL	...QUAN
				83151	CL	Ri	LT	20	MGL	...QUAN
				83153	CUTOT	Ri	LT	.04	MGL	...SQES
				N/C	ASTOT					
				83161	HGTOT	Ri	LT	2	UGL	...NOQC
				83158	CD	Ri	LT	.01	MGL	...QUAN
0350	SS0030	A30570	83140	83144	DBCP	Ri	LT	.2	UGL	...QUAN
				83143	DCPD	Ti	LT	1	UGL	...NOQC
				83145	DIMP	Ri	LT	10	UGL	...QUAN
				83153	DITH	Ri	LT	20	UGL	...QUAN
				83153	CPMSO	Ri	LT	20	UGL	...QUAN
				83153	CPMSO2	Ri	LT	20	UGL	...QUAN
				83145	ALDRN	Ri	LT	.2	UGL	...QUAN
				83145	ISODR	Ri	LT	.2	UGL	...QUAN
				83145	DLDRN	Ri		.57	UGL	...QUAN
				83145	ENDRN	Ri	LT	.2	UGL	...QUAN
				83143	CHCL3	Ti		1	UGL	...NOQC
				83143	CCL4	Ti	LT	1	UGL	...NOQC
				83143	C6H6	Ti		1	UGL	...NOQC
				83143	CLC6H5	Ti	LT	1	UGL	...NOQC
				83143	CL2BZ	Ti	LT	1	UGL	...NOQC
				83142	MEC6H5	Ti	LT	1	UGL	...NOQC
				83142	MIBK	Ti	LT	5	UGL	...NOQC
				83143	XYLEN	Ti	LT	.1	UGL	...NOQC
				83143	TRCLE	Ti	LT	1	UGL	...NOQC
				83143	TCLEE	Ti	LT	1	UGL	...NOQC
				83143	BCH	Ti	LT	1	UGL	...NOQC
				83166	CA	Ri		14.1	MGL	...QUAN
				83146	MG	Ri		1.38	MGL	...QUAN
				83145	F	Ri		.21	MGL	...QUAN
				83151	CL	Ri	LT	20	MGL	...QUAN
				83153	CUTOT	Ri		.06	MGL	...SQES
				N/C	ASTOT					
				83161	HGTOT	Ri	LT	2	UGL	...NOQC
				83158	CD	Ri	LT	.01	MGL	...QUAN

ER MBER	IDENT-IFIER	LAB NUMBER	COLL DATE	TEST DATE	TEST NAME	ME-TH	BO-OL	VALUE	UNITS	QC PROGRAM
0351	SS0040	A30571	83140	83172	DBCP	R1		648	UGL	...QUAN
				83143	DCPD	T1		346	UGL	...NOQC
				83145	DIMP	R1	LT	10	UGL	...QUAN
				83153	DITH	R1	LT	20	UGL	...QUAN
				83153	CPMSO	R1		53.8	UGL	...QUAN
				83160	CPMSO2	R1		496	UGL	...QUAN
				83145	DLDRN	R1	LT	.2	UGL	...QUAN
				83143	CHCL3	T1		1522	UGL	...NOQC
				83143	CCL4	T1		35	UGL	...NOQC
				83143	C6H6	T1		502.	UGL	...NOQC
				83143	CLC6H5	T1		1353	UGL	...NOQC
				83143	CL2BZ	T1		1183	UGL	...NOQC
				83142	MEC6H5	T1		129	UGL	...NOQC
				83143	MIBK	T1		13430	UGL	...NOQC
				83143	XYLEN	T1		116.	UGL	...NOQC
				83143	TRCLE	T1		126	UGL	...NOQC
				83143	TCLEE	T1		328	UGL	...NOQC
				83143	BCH	T1		126	UGL	...NOQC
				83166	CA	R1		79.4	MGL	...QUAN
				83146	MG	R1		20.2	MGL	...QUAN
				83145	F	R1		1.18	MGL	...QUAN
				83151	CL	R1		86.4	MGL	...QUAN
				83153	CUTOT	R1	LT	.04	MGL	...SQFS
				N/C	ASTOT					
				83161	HGTOT	R1	LT	2	UGL	...NOQC
				83158	CD	R1	LT	.01	MGL	...QUAN
0352	SS0050	A30572	83140	83144	DBCP	R1	LT	.2	UGL	...QUAN
				83143	DCPD	T1	LT	1	UGL	...NOQC
				83145	DIMP	R1	LT	10	UGL	...QUAN
				83153	DITH	R1	LT	20	UGL	...QUAN
				83153	CPMSO	R1	LT	20	UGL	...QUAN
				83153	CPMSO2	R1	LT	20	UGL	...QUAN
				83145	ALDRN	R1		.43	UGL	...QUAN
				83145	ISODR	R1	LT	.2	UGL	...QUAN
				83157	DLDRN	R1		5.48	UGL	...QUAN
				83145	ENDRN	R1		.2	UGL	...QUAN
				83143	CHCL3	T1		2	UGL	...NOQC
				83143	CCL4	T1	LT	1	UGL	...NOQC
				83143	C6H6	T1		1	UGL	...NOQC
				83143	CLC6H5	T1		12	UGL	...NOQC
				83143	CL2BZ	T1	LT	1	UGL	...NOQC
				83142	MEC6H5	T1	LT	1	UGL	...NOQC
				83142	MIBK	T1	LT	5	UGL	...NOQC
				83143	XYLEN	T1	LT	.1	UGL	...NOQC
				83143	TRCLE	T1	LT	1	UGL	...NOQC
				83143	TCLEE	T1	LT	1	UGL	...NOQC
				83143	BCH	T1	LT	1	UGL	...NOQC
				83166	CA	R1		23.	MGL	...QUAN
				83146	MG	R1		2.48	MGL	...QUAN
				83145	F	R1		1.02	MGL	...QUAN
				83151	CL	R1		21.4	MGL	...QUAN
				83153	CUTOT	R1	LT	.04	MGL	...SQFS
				N/C	ASTOT					
				83161	HGTOT	R1	LT	2	UGL	...NOQC
				83158	CD	R1	LT	.01	MGL	...QUAN

SCP NUMBER	IDENTIFIER	LAB NUMBER	COLL DATE	TEST DATE	TEST NAME	METH	QUAL	VALUE	UNITS	SC PR TORAN
0353	SS0060	A30573	83140	83144	DBCP	R1	LT	.2	UGL	...QUAN
				83143	DCPD	T1		22	UGL	...NOQC
				83145	DIMP	R1	LT	10	UGL	...QUAN
				83153	DITH	R1	LT	20	UGL	...QUAN
				83153	CPMSO	R1	LT	20	UGL	...QUAN
				83153	CPMSO2	R1	LT	20	UGL	...QUAN
				83159	ALDRN	R1		3.09	UGL	...QUAN
				83159	ISODR	R1		2.9	UGL	...QUAN
				83159	DLDRN	T1	LT	.15	UGL	...NOQC
				83145	ENDRN	R1	LT	.2	UGL	...QUAN
				83143	CHCL3	T1		3	UGL	...NOQC
				83143	CCL4	T1	LT	1	UGL	...NOQC
				83143	C6H6	T1		1	UGL	...NOQC
				83143	CLC6H5	T1	LT	1	UGL	...NOQC
				83143	CL2BZ	T1	LT	1	UGL	...NOQC
				83142	MEC6H5	T1	LT	1	UGL	...NOQC
				83142	MIBK	T1	LT	5	UGL	...NOQC
				83143	XYLEN	T1	LT	.1	UGL	...NOQC
				83143	TRCLE	T1	LT	1	UGL	...NOQC
				83143	TCLEE	T1	LT	1	UGL	...NOQC
				83143	BCH	T1	LT	1	UGL	...NOQC
				83166	CA	R1		11.5	MGL	...QUAN
				83146	MG	R1		25.1	MGL	...QUAN
				83145	F	R1		1.14	MGL	...QUAN
				83151	CL	R1		84.5	MGL	...QUAN
				83153	CUTOT	R1	LT	.04	MGL	...SQES
				N/C	ASTOT					
				83161	HGTOT	R1	LT	2	UGL	...NOQC
				83158	CD	R1	LT	.01	MGL	...QUAN
0349	SS0020	A30587	83140	83145	ALDRN	R1	LT	.2	UGL	Quantitative
				83145	ISODR	R1	LT	.2	UGL	Quantitative
				83145	DLDRN	R1		.66	UGL	Quantitative
				83145	ENDRN	R1	LT	.2	UGL	Quantitative
				83153	OXAT	4P	LT	20	UGL	Quantitative
				83153	DITH	4P	LT	20	UGL	Quantitative
				83153	CPMS	4P	LT	20	UGL	Quantitative
				83153	CPMSO	4P	LT	20	UGL	Quantitative
				83153	CPMSO2	4P	LT	20	UGL	Quantitative
				83145	DIMP	4S	LT	10	UGL	Quantitative
				83144	DBCP	4Q	LT	.2	UGL	Quantitative

GER UMBER	IDENT- IFIER	LAB NUMBER	COLL DATE	TEST DATE	TEST NAME	ME- TH	BO- OL	VALUE	UNITS	QC PROGRAM
I0354	SS0071	A30588	83140	83144	DBCP	R1	LT	.2	UGL	...QUAN
				83143	DCPD	T1	LT	1	UGL	...NOQC
				83145	DIMP	R1	LT	10	UGL	...QUAN
				83153	DITH	R1	LT	20	UGL	...QUAN
				83153	CPMSO	R1	LT	20	UGL	...QUAN
				83153	CPMSO2	R1	LT	20	UGL	...QUAN
				83145	ALDRN	R1		1.69	UGL	...QUAN
				83145	ISODR	R1		1.33	UGL	...QUAN
				83159	DLDRN	R1		32.7	UGL	...QUAN
				83145	ENDRN	R1	LT	.2	UGL	...QUAN
				83143	CHCL3	T1		10	UGL	...NOQC
				83143	CCL4	T1	LT	1	UGL	...NOQC
				83143	C6H6	T1		1	UGL	...NOQC
				83143	CLC6H5	T1	LT	1	UGL	...NOQC
				83143	CL2BZ	T1	LT	1	UGL	...NOQC
				83142	MEC6H5	T1	LT	1	UGL	...NOQC
				83142	MIBK	T1	LT	5	UGL	...NOQC
				83143	XYLEN	T1	LT	.1	UGL	...NOQC
				83143	TRCLE	T1	LT	1	UGL	...NOQC
				83143	TCLEE	T1	LT	1	UGL	...NOQC
				83143	BCH	T1	LT	1	UGL	...NOQC
				83166	CA	R1		22.6	MGL	...QUAN
				83146	MG	R1		1.05	MGL	...QUAN
				83145	F	R1		.27	MGL	...QUAN
				83151	CL	R1	LT	20	MGL	...QUAN
				83153	CUTOT	R1	LT	.04	MGL	...SQES
				N/C	ASTOT					
				N/C	HGTOT					
				83158	CD	R1	LT	.01	MGL	...QUAN
I0355	SS0080	A30569	83140	83145	ALDRN	R1	LT	.2	UGL	Quantitative
				83145	ISODR	R1	LT	.22	UGL	Quantitative
				83145	DLDRN	R1		.54	UGL	Quantitative
				83145	ENDRN	R1	LT	.2	UGL	Quantitative
				83153	OXAT	4P	LT	20	UGL	Quantitative
				83153	DITH	4P	LT	20	UGL	Quantitative
				83153	CPMS	4P	LT	20	UGL	Quantitative
				83153	CPMSO	4P	LT	20	UGL	Quantitative
				83153	CPMSO2	4P	LT	20	UGL	Quantitative
				83145	DIMP	4S	LT	10	UGL	Quantitative
				83144	DRCP	4Q	LT	.2	UGL	Quantitative

CR MBER	IDENT-IFIER	LAB NUMBER	COLL DATE	TEST DATE	TEST NAME	ME-TH	BO-OL	VALUE	UNITS	QC PROGRAM
0356	SS0081	A30590	83140	83144	DBCP	R1	LT	.2	UGL	...QUAN
				83143	DCPD	T1	LT	1	UGL	...NOQC
				83145	DIMP	R1	LT	10	UGL	...QUAN
				83153	DITH	R1	LT	20	UGL	...QUAN
				83153	CPMSO	R1	LT	20	UGL	...QUAN
				83153	CPMSO2	R1	LT	20	UGL	...QUAN
				83145	ALDRN	R1	LT	.2	UGL	...QUAN
				83145	ISODR	R1	LT	.2	UGL	...QUAN
				83145	DLDRN	R1		.62	UGL	...QUAN
				83145	ENDRN	R1	LT	.2	UGL	...QUAN
				83143	CHCL3	T1		7	UGL	...NOQC
				83143	CCL4	T1	LT	1	UGL	...NOQC
				83143	C6H6	T1		2	UGL	...NOQC
				83143	CLC6H5	T1	LT	1	UGL	...NOQC
				83143	CL2BZ	T1	LT	1	UGL	...NOQC
				83142	MEC6H5	T1	LT	1	UGL	...NOQC
				83142	MIBK	T1	LT	5	UGL	...NOQC
				83143	XYLEN	T1	LT	.1	UGL	...NOQC
				83143	TRCLE	T1	LT	1	UGL	...NOQC
				83143	TCLEE	T1	LT	1	UGL	...NOQC
				83143	BCH	T1	LT	1	UGL	...NOQC
				83166	CA	R1		18.1	MGL	...QUAN
				83146	MG	R1		1.59	MGL	...QUAN
				83145	F	R1		.2	MGL	...QUAN
				83151	CL	R1	LT	20	MGL	...QUAN
				83153	CUTOT	R1	LT	.04	MGL	...SQES
				N/C	ASTOT					
				83161	HGTOT	R1	LT	2	UGL	...NOQC
				83158	CD	R1	LT	.01	MGL	...QUAN
0357	SS0021	A30591	83140	83154	DBCP	R1	LT	.2	UGL	...QUAN
				83143	DCPD	T1	LT	1	UGL	...NOQC
				83145	DIMP	R1	LT	10	UGL	...QUAN
				83153	DITH	R1	LT	20	UGL	...QUAN
				83153	CPMSO	R1	LT	20	UGL	...QUAN
				83153	CPMSO2	R1	LT	20	UGL	...QUAN
				83145	ALDRN	R1	LT	.2	UGL	...QUAN
				83145	ISODR	R1	LT	.2	UGL	...QUAN
				83145	DLDRN	R1		.76	UGL	...QUAN
				83145	ENDRN	R1	LT	.2	UGL	...QUAN
				83143	CHCL3	T1		55	UGL	...NOQC
				83143	CCL4	T1	LT	1	UGL	...NOQC
				83143	C6H6	T1		1	UGL	...NOQC
				83143	CLC6H5	T1	LT	1	UGL	...NOQC
				83143	CL2BZ	T1	LT	1	UGL	...NOQC
				83142	MEC6H5	T1	LT	1	UGL	...NOQC
				83142	MIBK	T1	LT	5	UGL	...NOQC
				83143	XYLEN	T1	LT	.1	UGL	...NOQC
				83143	TRCLE	T1	LT	1	UGL	...NOQC
				83143	TCLEE	T1	LT	1	UGL	...NOQC
				83143	BCH	T1	LT	1	UGL	...NOQC
				83166	CA	R1		15.9	MGL	...QUAN
				83146	MG	R1		1.78	MGL	...QUAN
				83145	F	R1	LT	.2	MGL	...QUAN
				83172	CL	R1	LT	20	MGL	...QUAN
				83153	CUTOT	R1	LT	.04	MGL	...SQES
				N/C	ASTOT					
				83161	HGTOT	R1	LT	2	UGL	...NOQC
				83158	CD	R1	LT	.01	MGL	...QUAN

SER NUMBER	IDENT-IFIER	LAB NUMBER	COLL DATE	TEST DATE	TEST NAME	METH	BO-OL	VALUE	UNITS	QC PROGRAM
10358	SS0011	A30604	83140	83144	DBCP	R1	LT	.2	UGL	...QUAN
				83143	DCPD	T1	LT	1	UGL	...NOQC
				83145	DIMP	R1	LT	10	UGL	...QUAN
				83153	DITH	R1	LT	20	UGL	...QUAN
				83153	CPMSO	R1	LT	20	UGL	...QUAN
				83153	CPMSO2	R1	LT	20	UGL	...QUAN
				83145	ALDRN	R1		.26	UGL	...QUAN
				83145	ISODR	R1	LT	.2	UGL	...QUAN
				83145	DLDRN	R1		.81	UGL	...QUAN
				83145	ENDRN	R1	LT	.2	UGL	...QUAN
				83143	CHCL3	T1		7	UGL	...NOQC
				83143	CCL4	T1	LT	1	UGL	...NOQC
				83143	C6H6	T1	LT	1	UGL	...NOQC
				83143	CLC6H5	T1	LT	1	UGL	...NOQC
				83143	CL2BZ	T1	LT	1	UGL	...NOQC
				83143	MEC6H5	T1	LT	1	UGL	...NOQC
				83143	MIBK	T1	LT	5	UGL	...NOQC
				83143	XYLEN	T1	LT	.1	UGL	...NOQC
				83143	TRCLE	T1	LT	1	UGL	...NOQC
				83143	TCLEE	T1	LT	1	UGL	...NOQC
				83143	BCH	T1	LT	1	UGL	...NOQC
				83166	CA	R1		15.5	MGL	...QUAN
				83146	MG	R1		2.66	MGL	...QUAN
				83145	F	R1		.45	MGL	...QUAN
				83151	CL	R1	LT	20	MGL	...QUAN
				83153	CUTOT	R1	LT	.04	MGL	...SQES
				N/C	ASTOT					
				83161	HGTOT	R1	LT	2	UGL	...NOQC
				83158	CD	R1	LT	.01	MGL	...QUAN
10359	SS0031	A30605	83140	83144	DBCP	R1	LT	.2	UGL	...QUAN
				83144	DCPD	T1	LT	1	UGL	...NOQC
				83145	DIMP	R1	LT	10	UGL	...QUAN
				83153	DITH	R1	LT	20	UGL	...QUAN
				83153	CPMSO	R1	LT	20	UGL	...QUAN
				83153	CPMSO2	R1	LT	20	UGL	...QUAN
				83145	ALDRN	R1	LT	.2	UGL	...QUAN
				83145	ISODR	R1	LT	.2	UGL	...QUAN
				83145	DLDRN	R1		.41	UGL	...QUAN
				83145	ENDRN	R1	LT	.2	UGL	...QUAN
				83144	CHCL3	T1		4	UGL	...NOQC
				83144	CCL4	T1	LT	1	UGL	...NOQC
				83144	C6H6	T1	LT	1	UGL	...NOQC
				83144	CLC6H5	T1	LT	1	UGL	...NOQC
				83144	CL2BZ	T1	LT	1	UGL	...NOQC
				83144	MEC6H5	T1	LT	1	UGL	...NOQC
				83144	MIBK	T1	LT	5	UGL	...NOQC
				83144	XYLEN	T1	LT	.1	UGL	...NOQC
				83144	TRCLE	T1	LT	1	UGL	...NOQC
				83144	TCLEE	T1	LT	1	UGL	...NOQC
				83144	BCH	T1	LT	1	UGL	...NOQC
				83166	CA	R1		7.6	MGL	...QUAN
				83146	MG	R1		.774	MGL	...QUAN
				83145	F	R1		.24	MGL	...QUAN
				83151	CL	R1		21.4	MGL	...QUAN
				83153	CUTOT	R1	LT	.04	MGL	...SQES
				N/C	ASTOT					
				83161	HGTOT	R1	LT	2	UGL	...NOQC
				83158	CD	R1	LT	.01	MGL	...QUAN

ER MBER	IDENT-IFIER	LAB NUMBER	COLL DATE	TEST DATE	TEST NAME	METH	BQL	VALUE	UNITS	QC PROGRAM
0360	SS0041	A30606	83140	83145	DBCP	R1		322	UGL	. . QUAN
				83147	DCPD	T1	LT	1	UGL	. . .NOQC
				83145	DIMP	R1	LT	10	UGL	. . .QUAN
				83153	DITH	R1	LT	20	UGL	. . .QUAN
				83153	CPMSO	R1		29.1	UGL	. . .QUAN
				83158	CPMSO2	R1		225	UGL	. . .QUAN
				83159	ALDRN	R1		5.67	UGL	. . .QUAN
				83159	ISODR	R1		11.4	UGL	. . .QUAN
				83159	DLDRN	R1		5.72	UGL	. . .QUAN
				83159	ENDRN	R1		5.14	UGL	. . .QUAN
				83147	CHCL3	T1		1412	UGL	. . .NOQC
				83147	CCL4	T1	LT	1	UGL	. . .NOQC
				83147	C6H6	T1		369	UGL	. . .NOQC
				83147	CLC6H5	T1		761	UGL	. . .NOQC
				83147	CL2BZ	T1	LT	1	UGL	. . .NOQC
				83144	MEC6H5	T1	LT	1	UGL	. . .NOQC
				83147	MIBK	T1	LT	5	UGL	. . .NOQC
				83147	XYLEN	T1	LT	.1	UGL	. . .NOQC
				83147	TRCLE	T1	LT	1	UGL	. . .NOQC
				83147	TCLEE	T1		150	UGL	. . .NOQC
				83147	BCH	T1		43	UGL	. . .NOQC
				83166	CA	R1		52	MGL	. . .QUAN
				83146	MG	R1		7.28	MGL	. . .QUAN
				83145	F	R1		.56	MGL	. . .QUAN
				83151	CL	R1		36.9	MGL	. . .QUAN
				83153	CUTOT	R1	LT	.04	MGL	. . .SRES
				N/C	ASTOT					
				83161	HGTOT	R1	LT	2	UGL	. . .NOQC
				83158	CD	R1	LT	.01	MGL	. . .QUAN
0361	SS0051	A30607	83140	83144	DBCP	R1	LT	.2	UGL	. . .QUAN
				83147	DCPD	T1	LT	1	UGL	. . .NOQC
				83145	DIMP	R1	LT	10	UGL	. . .QUAN
				83153	DITH	R1	LT	20	UGL	. . .QUAN
				83153	CPMSO	R1	LT	20	UGL	. . .QUAN
				83153	CPMSO2	R1	LT	20	UGL	. . .QUAN
				83145	ALDRN	R1		1.48	UGL	. . .QUAN
				83145	ISODR	R1		.43	UGL	. . .QUAN
				83159	DLDRN	R1		7.79	UGL	. . .QUAN
				83145	ENDRN	R1	LT	.2	UGL	. . .QUAN
				83147	CHCL3	T1		8	UGL	. . .NOQC
				83147	CCL4	T1	LT	1	UGL	. . .NOQC
				83147	C6H6	T1		2	UGL	. . .NOQC
				83147	CLC6H5	T1		1	UGL	. . .NOQC
				83147	CL2BZ	T1	LT	1	UGL	. . .NOQC
				83147	MEC6H5	T1	LT	1	UGL	. . .NOQC
				83147	MIBK	T1		197	UGL	. . .NOQC
				83147	XYLEN	T1		2	UGL	. . .NOQC
				83147	TRCLE	T1	LT	1	UGL	. . .NOQC
				83147	TCLEE	T1	LT	1	UGL	. . .NOQC
				83147	BCH	T1	LT	1	UGL	. . .NOQC
				83166	CA	R1		18.6	MGL	. . .QUAN
				83146	MG	R1		2.48	MGL	. . .QUAN
				83145	F	R1		1.32	MGL	. . .QUAN
				83151	CL	R1		24.8	MGL	. . .QUAN
				83153	CUTOT	R1	LT	.04	MGL	. . .SRES
				N/C	ASTOT					
				83161	HGTOT	R1	LT	2	UGL	. . .NOQC
				83158	CD	R1	LT	.01	MGL	. . .QUAN

SER UMBER	IDENT- IFIER	LAB NUMBER	COLL DATE	TEST DATE	TEST NAME	ME- TH	BO- OI	VALUE	UNITS	QC PROGRAM
I0362	SS0061	A30608	83140	83144	DBCP	R1	LT	.2	UGL	...QUAN
				83147	DCPD	T1		30	UGL	...NOQC
				83145	DIMP	R1	LT	10	UGL	...QUAN
				83153	DITH	R1	LT	20	UGL	...QUAN
				83153	CPMSO	R1	LT	20	UGL	...QUAN
				83153	CPMSO2	R1	LT	20	UGL	...QUAN
				83159	ALDRN	R1		2.68	UGL	...QUAN
				83159	ISODR	R1		1.13	UGL	...QUAN
				83159	DLDRN	R1		22.3	UGL	...QUAN
				83145	ENDRN	R1		1.41	UGL	...QUAN
				83147	CHCL3	T1		2	UGL	...NOQC
				83147	CCL4	T1	LT	1	UGL	...NOQC
				83147	C6H6	T1	LT	1	UGL	...NOQC
				83147	CLC6H5	T1	LT	1	UGL	...NOQC
				83147	CL2BZ	T1	LT	1	UGL	...NOQC
				83147	MEC6H5	T1	LT	1	UGL	...NOQC
				83147	MIBK	T1		12	UGL	...NOQC
				83147	XYLEN	T1	LT	.1	UGL	...NOQC
				83147	TRCLE	T1	LT	1	UGL	...NOQC
				83147	TCLEE	T1	LT	1	UGL	...NOQC
				83147	BCH	T1	LT	1	UGL	...NOQC
				83166	CA	R1		95.4	MGL	...QUAN
				83146	MG	R1		21.2	MGL	...QUAN
				83145	F	R1		1.12	MGL	...QUAN
				83151	CL	R1		62.1	MGL	...QUAN
				83153	CUTOT	R1	LT	.04	MGL	...SQES
				N/C	ASTOT					
				83161	HGTOT	R1	LT	2	UGL	...NOQC
				83158	CD	R1	LT	.01	MGL	...QUAN
I0383	SS0012	A30781	83151	83172	CUTOT	R1	LT	.04	MGL	...QUAN
				N/C	ASTOT					
				N/C	HGTOT					
				N/C	CD					
				83154	DBCP	R1	LT	.2	UGL	...QUAN
				83157	DCPD	T1	LT	1	UGL	...NOQC
				83160	DIMP	R1	LT	10	UGL	...QUAN
				83160	DITH	R1	LT	20	UGL	...QUAN
				83160	CPMSO	R1	LT	20	UGL	...QUAN
				83160	CPMSO2	R1	LT	20	UGL	...QUAN
				83159	ALDRN	R1	LT	.2	UGL	...QUAN
				83159	ISODR	R1	LT	.2	UGL	...QUAN
				83159	DLDRN	R1		.4	UGL	...QUAN
				83159	ENDRN	R1	LT	.2	UGL	...QUAN
				83157	CHCL3	T1		19	UGL	...NOQC
				83157	CCL4	T1	LT	1	UGL	...NOQC
				83157	C6H6	T1		1	UGL	...NOQC
				83157	CLC6H5	T1	LT	1	UGL	...NOQC
				83157	MEC6H5	T1	LT	1	UGL	...NOQC
				83157	MIBK	T1	LT	5	UGL	...NOQC
				83157	XYLEN	T1	LT	.1	UGL	...NOQC
				83157	TRCLE	T1	LT	1	UGL	...NOQC
				83157	TCLEE	T1	LT	1	UGL	...NOQC
				83157	BCH	T1	LT	1	UGL	...NOQC
				83164	CA	R1		20	MGL	...SQES
				83171	MG	R1		2.4	MGL	...SQES
				83174	F	R1		.77	MGL	...SQES
				83161	CL	R1		558.1	MGL	...QUAN

ER NBCR	IDENT-IFIER	LAB NUMBER	COLL DATE	TEST DATE	TEST NAME	ME-TH	BO-OL	VALUE	UNITS	QC PROGRAM
0384	SS0022	A30782	83151	83172	CUTOT	R1	LT	.04	MGL	...QUAN
				N/C	ASTOT					
				N/C	HGTOT					
				N/C	CD					
				83154	DBCP	R1	LT	.2	UGL	...QUAN
				83157	DCPD	T1	LT	1	UGL	...NOQC
				83160	DIMP	R1	LT	10	UGL	...QUAN
				83160	DITH	R1	LT	20	UGL	...QUAN
				83160	CPMSO	R1	LT	20	UGL	...QUAN
				83160	CPMSO2	R1	LT	20	UGL	...QUAN
				83159	ALDRN	R1		.24	UGL	...QUAN
				83159	ISODR	R1	LT	.2	UGL	...QUAN
				83159	DLDRN	R1		3	UGL	...QUAN
				83159	ENDRN	R1		.2	UGL	...QUAN
				83157	CHCL3	T1	LT	1	UGL	...NOQC
				83157	CCL4	T1	LT	1	UGL	...NOQC
				83157	C6H6	T1		29	UGL	...NOQC
				83157	CLC6H5	T1	LT	1	UGL	...NOQC
				83157	MEC6H5	T1	LT	1	UGL	...NOQC
				83157	MIBK	T1	LT	5	UGL	...NOQC
				83157	XYLEN	T1	LT	.1	UGL	...NOQC
				83157	TRCLE	T1	LT	1	UGL	...NOQC
				83157	TCLEE	T1	LT	1	UGL	...NOQC
				83157	BCH	T1	LT	1	UGL	...NOQC
				83164	CA	R1		10	MGL	...SQES
				83171	MG	R1		2.1	MGL	...SQES
				83174	F	R1		.23	MGL	...QUAN
				83161	CL	R1		28.9	MGL	...QUAN
0385	SS0032	A30783	83151	83172	CUTOT	R1	LT	.04	MGL	...QUAN
				N/C	ASTOT					
				N/C	HGTOT					
				N/C	CD					
				83154	DBCP	R1	LT	.2	UGL	...QUAN
				83157	DCPD	T1	LT	1	UGL	...NOQC
				83160	DIMP	R1	LT	10	UGL	...QUAN
				83160	DITH	R1	LT	20	UGL	...QUAN
				83160	CPMSO	R1	LT	20	UGL	...QUAN
				83160	CPMSO2	R1	LT	20	UGL	...QUAN
				83159	ALDRN	R1	LT	.2	UGL	...QUAN
				83159	ISODR	R1	LT	.2	UGL	...QUAN
				83159	DLDRN	R1		.67	UGL	...QUAN
				83159	ENDRN	R1		.28	UGL	...QUAN
				83157	CHCL3	T1	LT	1	UGL	...NOQC
				83157	CCL4	T1	LT	1	UGL	...NOQC
				83157	C6H6	T1		4	UGL	...NOQC
				83157	CLC6H5	T1	LT	1	UGL	...NOQC
				83157	MEC6H5	T1	LT	1	UGL	...NOQC
				83157	MIBK	T1	LT	5	UGL	...NOQC
				83157	XYLEN	T1	LT	.1	UGL	...NOQC
				83157	TRCLE	T1	LT	1	UGL	...NOQC
				83157	TCLEE	T1	LT	1	UGL	...NOQC
				83157	BCH	T1	LT	1	UGL	...NOQC
				83164	CA	R1		34.5	MGL	...SQES
				83171	MG	R1		12.1	MGL	...SQES
				83174	F	R1		.94	MGL	...QUAN
				83161	CL	R1		322.8	MGL	...QUAN

ER BER	IDENT-IFIER	LAB NUMBER	COLL DATE	TEST DATE	TEST NAME	METH	BOOL	VALUE	UNITS	QC PROGRAM
0386	SS0042	A30784	83151	83172	CUTOT	R1	LT	.04	MGL	...QUAN
				N/C	ASTOT					
				N/C	HGTOT					
				N/C	CD					
				83165	DBCP	R1		264	UGL	...QUAN
				83157	DCPD	T1		65	UGL	...NOQC
				83160	DIMP	R1	LT	10	UGL	...QUAN
				83160	DITH	R1	LT	20	UGL	...QUAN
				83160	CPMSO	R1		38	UGL	...QUAN
				83173	CPMSO2	R1		216	UGL	...QUAN
				83159	ALDRN	R1	LT	.2	UGL	...QUAN
				83173	ISODR	R1		4.84	UGL	...QUAN
				83173	DLDRN	R1		4.6	UGL	...QUAN
				83173	ENDRN	R1		1.22	UGL	...QUAN
				83157	CHCL3	T1		1801	UGL	...NOQC
				83157	CCL4	T1		8	UGL	...NOQC
				83157	C6H6	T1		214	UGL	...NOQC
				83157	CLC6H5	T1		214	UGL	...NOQC
				83157	MEC6H5	T1		40	UGL	...NOQC
				83157	MIBK	T1		1736	UGL	...NOQC
				83157	XYLEN	T1		10	UGL	...NOQC
				83157	TRCLE	T1		40	UGL	...NOQC
				83157	TCLEE	T1		104	UGL	...NOQC
				83157	BCH	T1		21	UGL	...NOQC
				83164	CA	R1		39.2	MGL	...SQES
				83171	MG	R1		12	MGL	...SQES
				83174	F	R1		.69	MGL	...QUAN
				83161	CL	R1		67.6	MGL	...QUAN
0387	SS0052	A30785	83151	83172	CUTOT	R1	LT	.04	MGL	...QUAN
				N/C	ASTOT					
				N/C	HGTOT					
				N/C	CD					
				83154	DBCP	R1	LT	.2	UGL	...QUAN
				83157	DCPD	T1	LT	1	UGL	...NOQC
				83160	DIMP	R1	LT	10	UGL	...QUAN
				83160	DITH	R1	LT	20	UGL	...QUAN
				83160	CPMSO	R1	LT	20	UGL	...QUAN
				83160	CPMSO2	R1	LT	20	UGL	...QUAN
				83161	ALDRN	R1		.39	UGL	...QUAN
				83161	ISODR	R1	LT	.2	UGL	...QUAN
				83173	DLDRN	R1		4.66	UGL	...QUAN
				83161	ENDRN	R1	LT	.2	UGL	...QUAN
				83157	CHCL3	T1		2	UGL	...NOQC
				83157	CCL4	T1	LT	1	UGL	...NOQC
				83157	C6H6	T1		4	UGL	...NOQC
				83157	CLC6H5	T1	LT	1	UGL	...NOQC
				83157	CL2BZ	T1		55	UGL	...NOQC
				83157	MEC6H5	T1		2	UGL	...NOQC
				83157	MIBK	T1	LT	5	UGL	...NOQC
				83157	XYLEN	T1	LT	.1	UGL	...NOQC
				83157	TRCLE	T1	LT	1	UGL	...NOQC
				83157	TCLEE	T1	LT	1	UGL	...NOQC
				83157	BCH	T1	LT	1	UGL	...NOQC
				83164	CA	R1		24.3	MGL	...SQES
				83171	MG	R1		2.7	MGL	...SQES
				83174	F	R1		.99	MGL	...QUAN
				83161	CL	R1		30.6	MGL	...QUAN

SER NUMBER	IDENT-IFIER	LAB NUMBER	COLL DATE	TEST DATE	TEST NAME	METH	BOOL	VALUE	UNITS	QC PROGRAM
I0388	SS0062	A30766	83151	83172	CUTOT	R1	LT	.04	MGL	...QUAN
				N/C	ASTOT					
				N/C	HGTOT					
				N/C	CD					
				83154	DBCP	R1	LT	.2	UGL	...QUAN
				83157	DCPD	T1	LT	1	UGL	...NOQC
				83160	DIMP	R1	LT	10	UGL	...QUAN
				83160	DITH	R1	LT	20	UGL	...QUAN
				83160	CPMSO	R1	LT	20	UGL	...QUAN
				83160	CPMSO2	R1	LT	20	UGL	...QUAN
				83173	ALDRN	R1		3.37	UGL	...QUAN
				83173	ISODR	R1		5.02	UGL	...QUAN
				83173	DLDRN	R1		20	UGL	...QUAN
				83161	ENDRN	R1	LT	.2	UGL	...QUAN
				83157	CHCL3	T1		4	UGL	...NOQC
				83157	CCL4	T1	LT	1	UGL	...NOQC
				83157	C6H6	T1		3	UGL	...NOQC
				83157	CLC6H5	T1	LT	1	UGL	...NOQC
				83157	MEC6H5	T1	LT	1	UGL	...NOQC
				83157	MIBK	T1	LT	5	UGL	...NOQC
				83157	XYLEN	T1	LT	.1	UGL	...NOQC
				83157	TRCLE	T1	LT	1	UGL	...NOQC
				83157	TCLEE	T1	LT	1	UGL	...NOQC
				83157	BCH	T1	LT	1	UGL	...NOQC
				83164	CA	R1		72.3	MGL	...SQFS
				83171	MG	R1		29.3	MGL	...SQFS
				83174	F	R1		.92	MGL	...QUAN
				83161	CL	R1		105.6	MGL	...QUAN
I0389	SS0092	A30787	83151	83172	CUTOT	R1	LT	.04	MGL	...QUAN
				N/C	ASTOT					
				N/C	HGTOT					
				N/C	CD					
				83154	DBCP	R1	LT	.2	UGL	...QUAN
				83157	DCPD	T1	LT	1	UGL	...NOQC
				83160	DIMP	R1	LT	10	UGL	...QUAN
				83160	DITH	R1	LT	20	UGL	...QUAN
				83160	CPMSO	R1	LT	20	UGL	...QUAN
				83160	CPMSO2	R1	LT	20	UGL	...QUAN
				83161	ALDRN	R1	LT	.2	UGL	...QUAN
				83161	ISODR	R1		.31	UGL	...QUAN
				83173	DLDRN	R1		9.57	UGL	...QUAN
				83161	ENDRN	R1		1.95	UGL	...QUAN
				83157	CHCL3	T1	LT	1	UGL	...NOQC
				83157	CCL4	T1	LT	1	UGL	...NOQC
				83157	C6H6	T1	LT	1	UGL	...NOQC
				83157	CLC6H5	T1	LT	1	UGL	...NOQC
				83157	MEC6H5	T1	LT	1	UGL	...NOQC
				83157	MIBK	T1	LT	5	UGL	...NOQC
				83157	XYLEN	T1	LT	.1	UGL	...NOQC
				83157	TRCLE	T1	LT	1	UGL	...NOQC
				83157	TCLEE	T1	LT	1	UGL	...NOQC
				83157	BCH	T1	LT	1	UGL	...NOQC
				83164	CA	R1		7.55	MGL	...SQFS
				83171	MG	R1		1.25	MGL	...SQFS
				83174	F	R1		.25	MGL	...QUAN
				83161	CL	R1	LT	2.5	MGL	...QUAN

ER MBER	IDENT-IFIER	LAB NUMBER	COLL DATE	TEST DATE	TEST NAME	ME-TH	BO-OL	VALUE	UNITS	QC PROGRAM
0406	SS0033	A30849	83157	83161	DBCP	R1	LT	.2	UGL	. . .QUAN
				83168	DCPD	T1	LT	1	UGL	. . .NOQC
				83160	DIMP	R1	LT	10	UGL	. . .QUAN
				83160	DITH	R1	LT	20	UGL	. . .QUAN
				83160	CPMSO	R1	LT	20	UGL	. . .QUAN
				83160	CPMSO2	R1	LT	20	UGL	. . .QUAN
				83161	ALDRN	R1	LT	.2	UGL	. . .QUAN
				83161	ISODR	R1	LT	.2	UGL	. . .QUAN
				83161	DLDRN	R1		.21	UGL	. . .QUAN
				83161	ENDRN	R1	LT	.2	UGL	. . .QUAN
				83168	CHCL3	T1		1	UGL	. . .NOQC
				83168	CCL4	T1	LT	1	UGL	. . .NOQC
				83168	C6H6	T1	LT	1	UGL	. . .NOQC
				83168	CLC6H5	T1	LT	1	UGL	. . .NOQC
				83168	MEC6H5	T1	LT	1	UGL	. . .NOQC
				83168	MIBK	T1	LT	5	UGL	. . .NOQC
				83168	XYLEN	T1	LT	.1	UGL	. . .NOQC
				83168	TRCLE	T1	LT	1	UGL	. . .NOQC
				83168	TCLEE	T1	LT	1	UGL	. . .NOQC
				83168	BCH	T1	LT	1	UGL	. . .NOQC
				83164	CA	R1		64.2	MGL	. . .SQFS
				83171	MG	R1		12.5	MGL	. . .SQFS
				83174	F	R1		1.08	MGL	. . .QUAN
				83161	CL	R1		67.6	MGL	. . .QUAN
				83172	CUTOT	R1	LT	.04	MGL	. . .QUAN
				N/C	ASTOT					
				N/C	HGTOT					
				N/C	CD					
0407	SS0043	A30850	83157	83165	DBCP	R1		413	UGL	. . .QUAN
				83168	DCPD	T1		228.	UGL	. . .NOQC
				83160	DIMP	R1	LT	10	UGL	. . .QUAN
				83160	DITH	R1	LT	20	UGL	. . .QUAN
				83160	CPMSO	R1		53.5	UGL	. . .QUAN
				83179	CPMSO2	R1		514	UGL	. . .QUAN
				83182	ALDRN	R1		8.18	UGL	. . .QUAN
				83182	ISODR	R1		19.7	UGL	. . .QUAN
				83182	DLDRN	R1		3.61	UGL	. . .SQFS
				83161	ENDRN	R1	LT	.2	UGL	. . .QUAN
				83168	CHCL3	T1		1289	UGL	. . .NOQC
				83168	CCL4	T1		6	UGL	. . .NOQC
				83168	C6H6	T1		762	UGL	. . .NOQC
				83168	CLC6H5	T1		1053	UGL	. . .NOQC
				83168	MEC6H5	T1		43	UGL	. . .NOQC
				83168	MIBK	T1		6561	UGL	. . .NOQC
				83168	XYLEN	T1		90	UGL	. . .NOQC
				83168	TRCLE	T1		114.	UGL	. . .NOQC
				83168	TCLEE	T1		95	UGL	. . .NOQC
				83168	BCH	T1		64	UGL	. . .NOQC
				83164	CA	R1		35.1	MGL	. . .SQFS
				83171	MG	R1		14.7	MGL	. . .SQFS
				83174	F	R1		1.01	MGL	. . .QUAN
				83161	CL	R1		92.4	MGL	. . .QUAN
				83172	CUTOT	R1	LT	.04	MGL	. . .QUAN
				N/C	ASTOT					
				N/C	HGTOT					
				N/C	CD					

ER MBER	IDENT-IFIER	LAB NUMBER	COLL DATE	TEST DATE	TEST NAME	[illegible] TY	IO- CD	VALUE	UNITS	QU FLGS
0404	SS0013	A30847	83157	83161	DBCP	R1	LT	.2	UGL	...QUAN
				83168	DCPD	T1	LT	1	UGL	...NOQC
				83160	DIMP	R1	LT	10	UGL	...QUAN
				83160	DITH	R1	LT	20	UGL	...QUAN
				83160	CPMSO	R1	LT	20	UGL	...QUAN
				83160	CPMSO2	R1	LT	20	UGL	...QUAN
				83161	ALDRN	R1	LT	.2	UGL	...QUAN
				83161	ISODR	R1	LT	.2	UGL	...QUAN
				83161	DLDRN	R1		.48	UGL	...QUAN
				83161	ENDRN	R1	LT	.2	UGL	...QUAN
				83168	CHCL3	T1		1	UGL	...NOQC
				83168	CCL4	T1	LT	1	UGL	...NOQC
				83168	C6H6	T1	LT	1	UGL	...NOQC
				83168	CLC6H5	T1	LT	1	UGL	...NOQC
				83168	MEC6H5	T1	LT	1	UGL	...NOQC
				83168	MIBK	T1	LT	5	UGL	...NOQC
				83168	XYLEN	T1	LT	.1	UGL	...NOQC
				83168	TRCLE	T1	LT	1	UGL	...NOQC
				83168	TCLEE	T1	LT	1	UGL	...NOQC
				83168	BCH	T1	LT	1	UGL	...NOQC
				83164	CA	R1		8.45	MGL	...SQES
				83171	MG	R1		16.5	MGL	...SQES
				83174	F	R1		.3	MGL	...QUAN
				83161	CL	R1		25.6	MGL	...QUAN
				83172	CUTOT	R1	LT	.04	MGL	...QUAN
				N/C	ASTOT					
				N/C	HGTOT					
				N/C	CD					
0405	SS0023	A30848	83157	83161	DBCP	R1	LT	.2	UGL	...QUAN
				83168	DCPD	T1	LT	1	UGL	...NOQC
				83160	DIMP	R1	LT	10	UGL	...QUAN
				83160	DITH	R1	LT	20	UGL	...QUAN
				83160	CPMSO	R1	LT	20	UGL	...QUAN
				83160	CPMSO2	R1	LT	20	UGL	...QUAN
				83161	ALDRN	R1	LT	.2	UGL	...QUAN
				83161	ISODR	R1	LT	.2	UGL	...QUAN
				83161	DLDRN	R1		1.12	UGL	...QUAN
				83161	ENDRN	R1	LT	.2	UGL	...QUAN
				83168	CHCL3	T1		15	UGL	...NOQC
				83168	CCL4	T1	LT	1	UGL	...NOQC
				83168	C6H6	T1	LT	1	UGL	...NOQC
				83168	CLC6H5	T1	LT	1	UGL	...NOQC
				83168	MEC6H5	T1	LT	1	UGL	...NOQC
				83168	MIBK	T1	LT	5	UGL	...NOQC
				83168	XYLEN	T1	LT	.1	UGL	...NOQC
				83168	TRCLE	T1	LT	1	UGL	...NOQC
				83168	TCLEE	T1	LT	1	UGL	...NOQC
				83168	BCH	T1	LT	1	UGL	...NOQC
				83164	CA	R1		5.45	MGL	...SQES
				83171	MG	R1		19.8	MGL	...SQES
				83174	F	R1		.3	MGL	...QUAN
				83161	CL	R1	LT	20	MGL	...QUAN
				83172	CUTOT	R1	LT	.04	MGL	...QUAN
				N/C	ASTOT					
				N/C	HGTOT					
				N/C	CD					

SER NUMBER	IDENT-IFIER	LAB NUMBER	COLL DATE	TEST DATE	TEST NAME	METH	BOOL	VALUE	UNITS	QC PROGRAM
GT0408	SS0053	A30851	83157	83161	DBCP	R1	LT	.2	UGL	QUAN
				83168	DCPD	T1	LT	1	UGL	NOQC
				83160	DIMP	R1	LT	10	UGL	QUAN
				83160	DITH	R1	LT	20	UGL	QUAN
				83160	CPMSO	R1	LT	20	UGL	QUAN
				83160	CPMSO2	R1	LT	20	UGL	QUAN
				83161	ALDRN	R1		1.31	UGL	QUAN
				83161	ISODR	R1	LT	.2	UGL	QUAN
				83182	DLDRN	R1		7.98	UGL	SQFS
				83161	ENDRN	R1	LT	.2	UGL	QUAN
				83168	CHCL3	T1		3	UGL	NOQC
				83168	CCL4	T1	LT	1	UGL	NOQC
				83168	C6H6	T1	LT	1	UGL	NOQC
				83168	CLC6H5	T1	LT	1	UGL	NOQC
				83168	MEC6H5	T1	LT	1	UGL	NOQC
				83168	MIBK	T1	LT	5	UGL	NOQC
				83168	XYLEN	T1	LT	.1	UGL	NOQC
				83168	TRCLE	T1	LT	1	UGL	NOQC
				83168	TCLEE	T1	LT	1	UGL	NOQC
				83168	BCH	T1	LT	1	UGL	NOQC
				83164	CA	R1		21.6	MGL	SQFS
				83171	MG	R1		2.5	MGL	SQFS
				83174	F	R1		.89	MGL	QUAN
				83161	CL	R1	LT	20	MGL	QUAN
				83172	CUTOT	R1	LT	.04	MGL	QUAN
				N/C	ASTOT					
				N/C	HGTOT					
				N/C	CD					
GT0409	SS0063	A30852	83157	83161	DBCP	R1	LT	.2	UGL	QUAN
				83168	DCPD	T1	LT	1	UGL	NOQC
				83160	DIMP	R1	LT	10	UGL	QUAN
				83160	DITH	R1	LT	20	UGL	QUAN
				83160	CPMSO	R1	LT	20	UGL	QUAN
				83160	CPMSO2	R1	LT	20	UGL	QUAN
				83173	ALDRN	R1		3.7	UGL	QUAN
				83173	ISODR	R1		4.91	UGL	QUAN
				83182	DLDRN	R1		30	UGL	SQFS
				83161	ENDRN	R1	LT	.2	UGL	QUAN
				83168	CHCL3	T1		3	UGL	NOQC
				83168	CCL4	T1	LT	1	UGL	NOQC
				83168	C6H6	T1	LT	1	UGL	NOQC
				83168	CLC6H5	T1	LT	1	UGL	NOQC
				83168	MEC6H5	T1	LT	1	UGL	NOQC
				83168	MIBK	T1	LT	5	UGL	NOQC
				83168	XYLEN	T1	LT	.1	UGL	NOQC
				83168	TRCLE	T1	LT	1	UGL	NOQC
				83168	TCLEE	T1	LT	1	UGL	NOQC
				83168	BCH	T1	LT	1	UGL	NOQC
				83164	CA	R1		85.5	MGL	SQFS
				83171	MG	R1		18.8	MGL	SQFS
				83174	F	R1		1.22	MGL	QUAN
				83161	CL	R1		199.3	MGL	QUAN
				83172	CUTOT	R1	LT	.04	MGL	QUAN
				N/C	ASTOT					
				N/C	HGTOT					
				N/C	CD					

SER JMBER	IDENT-IFIER	LAB NUMBER	COLL DATE	TEST DATE	TEST NAME	ME-TH	BO-OL	VALUE	UNITS	QC PROGRAM
T0410	SS0093	A30853	83157	83161	DBCP	R1	LT	.2	UGL	...QUAN
				83168	DCPD	T1	LT	1	UGL	...NOQC
				83160	DIMP	R1	LT	10	UGL	...QUAN
				83160	DITH	R1	LT	20	UGL	...QUAN
				83160	CPMSO	R1	LT	20	UGL	...QUAN
				83160	CPMSO2	R1	LT	20	UGL	...QUAN
				83161	ALDRN	R1	LT	.2	UGL	...QUAN
				83161	ISODR	R1		.24	UGL	...QUAN
				83173	DLDRN	R1		8.55	UGL	...QUAN
				83161	ENDRN	R1		1.89	UGL	...QUAN
				83168	CHCL3	T1		5	UGL	...NOQC
				83168	CCL4	T1	LT	1	UGL	...NOQC
				83168	C6H6	T1	LT	1	UGL	...NOQC
				83168	CLC6H5	T1	LT	1	UGL	...NOQC
				83168	MEC6H5	T1	LT	1	UGL	...NOQC
				83168	MIBK	T1	LT	5	UGL	...NOQC
				83168	XYLEN	T1	LT	.1	UGL	...NOQC
				83168	TRCLE	T1	LT	1	UGL	...NOQC
				83168	TCLEE	T1	LT	1	UGL	...NOQC
				83168	BCH	T1	LT	1	UGL	...NOQC
				83164	CA	R1		8.32	MGL	...SQES
				83171	MG	R1		26.4	MGL	...SQES
				83174	F	R1		.23	MGL	...QUAN
				83161	CL	R1		28.9	MGL	...QUAN
				83172	CUTOT	R1	LT	.04	MGL	...QUAN
				N/C	ASTOT					
				N/C	HGTOT					
				N/C	CD					
T0423	SS0014	A31068	83166	83182	CUTOT	R1	LT	.4	MGL	...QUAN
				N/C	ASTOT					
				N/C	HGTOT					
				83190	CD	R1	LT	.01	MGL	...SQES
				83172	DBCP	R1	LT	.2	UGL	...QUAN
				83174	DCPD	T1		20	UGL	...NOQC
				83174	DIMP	R1	LT	10	UGL	...QUAN
				83179	DITH	R1	LT	20	UGL	...QUAN
				83173	CPMSO	R1	LT	20	UGL	...QUAN
				83173	CPMSO2	R1	LT	20	UGL	...QUAN
				83173	ALDRN	R1	LT	.2	UGL	...QUAN
				83173	ISODR	R1	LT	.2	UGL	...QUAN
				83173	DLDRN	R1		1.91	UGL	...QUAN
				83173	ENDRN	R1		.94	UGL	...QUAN
				83174	CHCL3	T1		4785	UGL	...NOQC
				83174	CCL4	T1	LT	1	UGL	...NOQC
				83174	C6H6	T1		3465	UGL	...NOQC
				83174	CLC6H5	T1	LT	1	UGL	...NOQC
				83174	MEC6H5	T1		3	UGL	...NOQC
				83174	MIBK	T1	LT	5	UGL	...NOQC
				83174	XYLEN	T1	LT	.1	UGL	...NOQC
				83174	TRCLE	T1	LT	1	UGL	...NOQC
				83174	TCLEE	T1		4	UGL	...NOQC
				83174	BCH	T1	LT	1	UGL	...NOQC
				83172	CA	R1		7.2	MGL	...SQES
				N/C	MG					
				83178	F	R1		.15	MGL	...QUAN
				83187	CL	R1	LT	20	MGL	...QUAN

USER NUMBER	IDENT-IFIER	LAB NUMBER	COLL DATE	TEST DATE	TEST NAME	METH	BOI	VALUE	UNITS	QC PROGRAM
GI0424	SS0024	A31069	83166	83182	CUTOT	R1	LT	.4	MGL	...QUAN
				N/C	ASTOT					
				N/C	HGTOT					
				83190	CD	R1	LT	.01	MGL	...SQFS
				83172	DBCP	R1	LT	.2	UGL	...QUAN
				83174	DCPD	T1		5	UGL	...NOQC
				83174	DIMP	R1	LT	10	UGL	...QUAN
				83179	DITH	R1	LT	20	UGL	...QUAN
				83173	CPMSO	R1	LT	20	UGL	...QUAN
				83173	CPMSO2	R1	LT	20	UGL	...QUAN
				83173	ALDRN	R1	LT	.2	UGL	...QUAN
				83173	ISODR	R1	LT	.2	UGL	...QUAN
				83182	DLDRN	R1		3.89	UGL	...SQES
				83173	ENDRN	R1	LT	.2	UGL	...QUAN
				83174	CHCL3	T1		2905	UGL	...NOQC
				83174	CCL4	T1	LT	1	UGL	...NOQC
				83174	C6H6	T1		384	UGL	...NOQC
				83174	CLC6H5	T1	LT	1	UGL	...NOQC
				83174	MEC6H5	T1	LT	1	UGL	...NOQC
				83174	MIBK	T1	LT	5	UGL	...NOQC
				83174	XYLEN	T1	LT	.1	UGL	...NOQC
				83174	TRCLE	T1	LT	1	UGL	...NOQC
				83174	TCLEE	T1	LT	1	UGL	...NOQC
				83174	BCH	T1	LT	1	UGL	...NOQC
				83172	CA	R1		18	MGL	...SQES
				N/C	MG					
				83178	F	R1		.24	MGL	...QUAN
				83187	CL	R1	LT	20	MGL	...QUAN
GI0425	SS0034	A31070	83166	83182	CUTOT	R1	LT	.4	MGL	...QUAN
				N/C	ASTOT					
				N/C	HGTOT					
				83190	CD	R1	LT	.01	MGL	...SQFS
				83172	DBCP	R1	LT	.2	UGL	...QUAN
				83174	DCPD	T1		4	UGL	...NOQC
				83174	DIMP	R1	LT	10	UGL	...QUAN
				83179	DITH	R1	LT	20	UGL	...QUAN
				83173	CPMSO	R1	LT	20	UGL	...QUAN
				83173	CPMSO2	R1	LT	20	UGL	...QUAN
				83173	ALDRN	R1	LT	.2	UGL	...QUAN
				83173	ISODR	R1	LT	.2	UGL	...QUAN
				83173	DLDRN	R1		.45	UGL	...QUAN
				83173	ENDRN	R1	LT	.2	UGL	...QUAN
				83174	CHCL3	T1		3891	UGL	...NOQC
				83174	CCL4	T1	LT	1	UGL	...NOQC
				83174	C6H6	T1		1157	UGL	...NOQC
				83174	CLC6H5	T1	LT	1	UGL	...NOQC
				83174	MEC6H5	T1	LT	1	UGL	...NOQC
				83174	MIBK	T1	LT	5	UGL	...NOQC
				83174	XYLEN	T1	LT	.1	UGL	...NOQC
				83174	TRCLE	T1	LT	1	UGL	...NOQC
				83174	TCLEE	T1		2	UGL	...NOQC
				83174	BCH	T1	LT	1	UGL	...NOQC
				83172	CA	R1		36	MGL	...SQES
				N/C	MG					
				83178	F	R1		1.03	MGL	...QUAN
				83187	CL	R1		54.51	MGL	...QUAN

ER MBER	IDENT-IFIER	LAB NUMBER	COLL DATE	TEST DATE	TEST NAME	ME-TH	BO-OL	VALUE	UNITS	QC PROGRAM
0426	SS0044	A31071	83166	83182	CUTOT	R1	LT	.4	MGL	...QUAN
				N/C	ASTOT					
				N/C	HGTOT					
				83190	CD	R1	LT	.01	MGL	...SQFS
				83179	DBCP	R1		151	UGL	...QUAN
				83174	DCPD	T1		71	UGL	...NOQC
				83174	DIMP	R1	LT	10	UGL	...QUAN
				83179	DITH	R1	LT	20	UGL	...QUAN
				83173	CPMSO	R1		40.3	UGL	...QUAN
				83179	CPMSO2	R1		164	UGL	...QUAN
				83182	ALDRN	R1		2.45	UGL	...QUAN
				83182	ISODR	R1		7.49	UGL	...QUAN
				83173	DLDRN	R1	LT	.2	UGL	...QUAN
				83182	ENDRN	R1		5.02	UGL	...SQFS
				83174	CHCL3	T1		263	UGL	...NOQC
				83174	CCL4	T1	LT	1	UGL	...NOQC
				83174	C6H6	T1		55	UGL	...NOQC
				83174	CLC6H5	T1		1966	UGL	...NOQC
				83174	MEC6H5	T1		70	UGL	...NOQC
				83174	MIBK	T1		3484	UGL	...NOQC
				83174	XYLEN	T1		8	UGL	...NOQC
				83174	TRCLE	T1		29	UGL	...NOQC
				83174	TCLEE	T1		548	UGL	...NOQC
				83174	BCH	T1		6	UGL	...NOQC
				83172	CA	R1		25	MGL	...SRES
				N/C	MG					
				83178	F	R1		.52	MGL	...QUAN
				83187	CL	R1		32.15	MGL	...QUAN
0427	SS0054	A31072	83166	83182	CUTOT	R1	LT	.4	MGL	...QUAN
				N/C	ASTOT					
				N/C	HGTOT					
				83190	CD	R1	LT	.01	MGL	...SQFS
				83172	DBCP	R1	LT	.2	UGL	...QUAN
				83174	DCPD	T1	LT	1	UGL	...NOQC
				83174	DIMP	R1	LT	10	UGL	...QUAN
				83179	DITH	R1	LT	20	UGL	...QUAN
				83173	CPMSO	R1	LT	20	UGL	...QUAN
				83173	CPMSO2	R1	LT	20	UGL	...QUAN
				83173	ALDRN	R1		.38	UGL	...QUAN
				83173	ISODR	R1	LT	.2	UGL	...QUAN
				83182	DLDRN	R1		4.75	UGL	...SQFS
				83173	ENDRN	R1		.48	UGL	...QUAN
				83174	CHCL3	T1		2	UGL	...NOQC
				83174	CCL4	T1	LT	1	UGL	...NOQC
				83174	C6H6	T1	LT	1	UGL	...NOQC
				83174	CLC6H5	T1	LT	1	UGL	...NOQC
				83174	MEC6H5	T1	LT	1	UGL	...NOQC
				83174	MIBK	T1	LT	5	UGL	...NOQC
				83174	XYLEN	T1	LT	.1	UGL	...NOQC
				83174	TRCLE	T1	LT	1	UGL	...NOQC
				83174	TCLEE	T1	LT	1	UGL	...NOQC
				83174	BCH	T1	LT	1	UGL	...NOQC
				83172	CA	R1		32	MGL	...SRES
				N/C	MG					
				83178	F	R1		.84	MGL	...QUAN
				83187	CL	R1	LT	20	MGL	...QUAN

SER NUMBER	IDENT-IFIER	LAB NUMBER	COLL DATE	TEST DATE	TEST NAME	METH	QUAL	VALUE	UNITS	QC PROGRAM
10420	SS0064	A31073	83166	83182	CUTOT	R1	LT	.4	MGL	...QUAN
				N/C	ASTOT					
				N/C	HGTOT					
				83190	CD	R1	LT	.01	MGL	...SQES
				83172	DBCP	R1	LT	.2	UGL	...QUAN
				83174	DCPD	T1	LT	1	UGL	...NOQQ
				83174	DIMP	R1	LT	10	UGL	...QUAN
				83179	DITH	R1	LT	20	UGL	...QUAN
				83173	CPMSO	R1	LT	20	UGL	...QUAN
				83173	CPMSO2	R1	LT	20	UGL	...QUAN
				83182	ALDRN	R1		3.68	UGL	...QUAN
				83182	ISODR	R1		5.61	UGL	...QUAN
				83193	DLDRN	R1		3.6	UGL	...QUAN
				83173	ENDRN	R1		.52	UGL	...QUAN
				83174	CHCL3	T1	LT	1	UGL	...NOQQ
				83174	CCL4	T1	LT	1	UGL	...NOQQ
				83174	C6H6	T1	LT	1	UGL	...NOQQ
				83174	CLC6H5	T1	LT	1	UGL	...NOQQ
				83174	MEC6H5	T1	LT	1	UGL	...NOQQ
				83174	MIBK	T1	LT	5	UGL	...NOQQ
				83174	XYLEN	T1	LT	.1	UGL	...NOQQ
				83174	TRCLE	T1	LT	1	UGL	...NOQQ
				83174	TCLEE	T1	LT	1	UGL	...NOQQ
				83174	BCH	T1	LT	1	UGL	...NOQQ
				83172	CA	R1		74	MGL	...SQES
				N/C	MG					
				83178	F	R1		1.03	MGL	...QUAN
				83187	CL	R1		101.4	MGL	...QUAN
10422	SS0074	A31074	83166	83182	CUTOT	R1	LT	.4	MGL	...QUAN
				N/C	ASTOT					
				N/C	HGTOT					
				83190	CD	R1	LT	.01	MGL	...SQES
				83172	DBCP	R1	LT	.2	UGL	...QUAN
				83174	DCPD	T1	LT	1	UGL	...NOQQ
				83174	DIMP	R1	LT	10	UGL	...QUAN
				83179	DITH	R1	LT	20	UGL	...QUAN
				83173	CPMSO	R1	LT	20	UGL	...QUAN
				83173	CPMSO2	R1	LT	20	UGL	...QUAN
				83173	ALDRN	R1		3.68	UGL	...QUAN
				83173	ISODR	R1		5.61	UGL	...QUAN
				83182	DLDRN	R1		24.6	UGL	...QUAN
				83188	ENDRN	R1		3.29	UGL	...QUAN
				83174	CHCL3	T1		1778	UGL	...NOQQ
				83174	CCL4	T1	LT	1	UGL	...NOQQ
				83174	C6H6	T1		3267	UGL	...NOQQ
				83174	CLC6H5	T1		1	UGL	...NOQQ
				83174	MEC6H5	T1	LT	1	UGL	...NOQQ
				83174	MIBK	T1	LT	5	UGL	...NOQQ
				83174	XYLEN	T1	LT	.1	UGL	...NOQQ
				83174	TRCLE	T1	LT	1	UGL	...NOQQ
				83174	TCLEE	T1		2	UGL	...NOQQ
				83174	BCH	T1	LT	1	UGL	...NOQQ
				83172	CA	R1		45	MGL	...SQES
				N/C	MG					
				83178	F	R1		.2	MGL	...QUAN
				83187	CL	R1	LT	20	MGL	...QUAN

SER NUMBER	IDENT-IFIER	LAB NUMBER	COLL DATE	TEST DATE	TEST NAME	ME-TH	BO-OL	VALUE	UNITS	QC PROGRAM
10429	SS0074	A31074	83166	83182	CUTOT	R1	LT	.4	MGL	...QUAN
				N/C	ASTOT					
				N/C	HGTOT					
				83190	CD	R1	LT	.01	MGL	...SQFS
				83172	DBCP	R1	LT	.2	UGL	...QUAN
				83174	DCPD	T1	LT	1	UGL	...NOQC
				83174	DIMP	R1	LT	10	UGL	...QUAN
				83179	DITH	R1	LT	20	UGL	...QUAN
				83173	CPMSO	R1	LT	20	UGL	...QUAN
				83173	CPMSO2	R1	LT	20	UGL	...QUAN
				83173	ALDRN	R1		2.15	UGL	...QUAN
				83173	ISODR	R1		1.21	UGL	...QUAN
				83182	DLDRN	R1		24.6	UGL	...SQES
				83188	ENDRN	R1		3.29	UGL	...QUAN
				83174	CHCL3	T1		1778	UGL	...NOQC
				83174	CCL4	T1	LT	1	UGL	...NOQC
				83174	C6H6	T1		3267	UGL	...NOQC
				83174	CLC6H5	T1	LT	1	UGL	...NOQC
				83174	MEC6H5	T1	LT	1	UGL	...NOQC
				83174	MIBK	T1	LT	5	UGL	...NOQC
				83174	XYLEN	T1	LT	.1	UGL	...NOQC
				83174	TRCLE	T1	LT	1	UGL	...NOQC
				83174	TCLEE	T1		2	UGL	...NOQC
				83174	BCH	T1	LT	1	UGL	...NOQC
				83172	CA	R1		45	MGL	...SQES
				N/C	MG					
				83178	F	R1		.2	MGL	...QUAN
				83187	CL	R1	LT	20	MGL	...QUAN
10430	SS0084	A31075	83166	83182	CUTOT	R1	LT	.4	MGL	...QUAN
				N/C	ASTOT					
				N/C	HGTOT					
				83190	CD	R1	LT	.01	MGL	...SQFS
				83174	DCPD	T1	LT	1	UGL	...NOQC
				83174	DIMP	R1	LT	10	UGL	...QUAN
				83179	DITH	R1	LT	20	UGL	...QUAN
				83173	CPMSO	R1	LT	20	UGL	...QUAN
				83173	CPMSO2	R1	LT	20	UGL	...QUAN
				83173	ISODR	R1		.22	UGL	...QUAN
				83173	DLDRN	R1		1.33	UGL	...QUAN
				83174	CHCL3	T1		3410	UGL	...NOQC
				83174	CCL4	T1	LT	1	UGL	...NOQC
				83174	C6H6	T1		1967	UGL	...NOQC
				83174	CLC6H5	T1	LT	1	UGL	...NOQC
				83174	MEC6H5	T1	LT	1	UGL	...NOQC
				83174	MIBK	T1	LT	5	UGL	...NOQC
				83174	XYLEN	T1	LT	.1	UGL	...NOQC
				83174	TRCLE	T1	LT	1	UGL	...NOQC
				83174	TCLEE	T1	LT	1	UGL	...NOQC
				83174	BCH	T1	LT	1	UGL	...NOQC
				83172	CA	R1		1.3	MGL	...SQFS
				N/C	MG					
				83178	F	R1		.17	MGL	...QUAN

ER NUMBER	IDENT-IFIER	LAB NUMBER	COLL DATE	TEST DATE	TEST NAME	METH	ISO-OL	VALUE	UNITS	QC PROGRAM
10431	SS0094	A31076	83166	83182	CUTOT	R1	LT	.4	MGL	...QUAN
				N/C	ASTOT					
				N/C	HGTOT					
				83190	CD	R1	LT	.01	MGL	...SOLS
				83172	DBCP	R1	LT	.2	UGL	...QUAN
				83174	DCPD	T1	LT	1	UGL	...NOQC
				83174	DIMP	R1		41.2	UGL	...QUAN
				83179	DITH	R1	LT	20	UGL	...QUAN
				83173	CPMSO	R1	LT	20	UGL	...QUAN
				83173	CPMSO2	R1	LT	20	UGL	...QUAN
				83173	ALDRN	R1		.38	UGL	...QUAN
				83173	ISODR	R1		.62	UGL	...QUAN
				83182	DLDRN	R1		5.22	UGL	...SRES
				83173	ENDRN	R1		1.28	UGL	...QUAN
				83174	CHCL3	T1		1331	UGL	...NOQC
				83174	CCL4	T1	LT	1	UGL	...NOQC
				83174	C6H6	T1		3738	UGL	...NOQC
				83174	CLC6H5	T1	LT	1	UGL	...NOQC
				83174	MFC6H5	T1		2	UGL	...NOQC
				83174	MIBK	T1	LT	5	UGL	...NOQC
				83174	XYLEN	T1	LT	.1	UGL	...NOQC
				83174	TRCLE	T1	LT	1	UGL	...NOQC
				83174	TCLEE	T1		5	UGL	...NOQC
				83174	BCM	T1	LT	1	UGL	...NOQC
				83172	CA	R1		7.2	MGL	...SRES
				N/C	MG					
				83178	F	R1		.25	MGL	...QUAN
				83187	CL	R1	LT	20	MGL	...QUAN

USER NUMBER	IDENT-IFIER	LAB NUMBER	COLL DATE	TEST DATE	TEST NAME	METH	BDL	VALUE	UNITS	QC PROGRAM
GI0489	SS0075	A31327	83178	83182	DBCP	R1	LT	.2	UGL	...QUAN
				83174	DCPD	T1	LT	1	UGL	...NOQC
				83186	DIMP	R1	LT	10	UGL	...QUAN
				83181	DITH	R1	LT	20	UGL	...QUAN
				83181	CPMSO	R1	LT	20	UGL	...QUAN
				83181	CPMSO2	R1	LT	20	UGL	...QUAN
				83193	ALDRN	R1		4.57	UGL	...QUAN
				83182	ISODR	R1		1.38	UGL	...QUAN
				83182	DLDRN	R1	LT	.2	UGL	...SQES
				83182	ENDRN	R1	LT	.2	UGL	...SQES
				83174	CHCL3	T1		3	UGL	...NOQC
				83174	CCL4	T1	LT	1	UGL	...NOQC
				83174	C6H6	T1	LT	1	UGL	...NOQC
				83174	CLC6H5	T1	LT	1	UGL	...NOQC
				83174	MEC6H5	T1	LT	1	UGL	...NOQC
				83174	MIBK	T1	LT	5	UGL	...NOQC
				83174	XYLEN	T1	LT	.1	UGL	...NOQC
				83174	TRCLE	T1	LT	1	UGL	...NOQC
				83174	TCLEE	T1	LT	1	UGL	...NOQC
				83174	BCH	T1	LT	1	UGL	...NOQC
				N/C	CA					
				N/C	MG					
				N/C	F					
				N/C	CL					
				83193	CUTOT	R1		.31	MGL	...QUAN
				N/C	ASTOT					
				N/C	HGTOT					
				83195	CD	R1	LT	.01	MGL	...SQES
GI0490	SS0085	A31328	83178	83182	DBCP	R1	LT	.2	UGL	...QUAN
				83174	DCPD	T1	LT	1	UGL	...NOQC
				83186	DIMP	R1	LT	10	UGL	...QUAN
				83181	DITH	R1	LT	20	UGL	...QUAN
				83181	CPMSO	R1	LT	20	UGL	...QUAN
				83181	CPMSO2	R1	LT	20	UGL	...QUAN
				83182	ALDRN	R1	LT	.2	UGL	...QUAN
				83182	ISODR	R1	LT	.2	UGL	...QUAN
				83182	DLDRN	R1	LT	.2	UGL	...SQES
				83182	ENDRN	R1	LT	.2	UGL	...SQES
				83174	CHCL3	T1		64	UGL	...NOQC
				83174	CCL4	T1	LT	1	UGL	...NOQC
				83174	C6H6	T1		14.	UGL	...NOQC
				83174	CLC6H5	T1	LT	1	UGL	...NOQC
				83174	MEC6H5	T1	LT	1	UGL	...NOQC
				83174	MIBK	T1	LT	5	UGL	...NOQC
				83174	XYLEN	T1	LT	.1	UGL	...NOQC
				83174	TRCLE	T1	LT	1	UGL	...NOQC
				83174	TCLEE	T1	LT	1	UGL	...NOQC
				83174	BCH	T1	LT	1	UGL	...NOQC
				N/C	CA					
				N/C	MG					
				N/C	F					
				N/C	CL					
				83193	CUTOT	R1		.36	MGL	...QUAN
				N/C	ASTOT					
				N/C	HGTOT					
				83195	CD	R1	LT	.01	MGL	...SQES

SER UMBER	IDENT-IFIER	LAB NUMBER	COLL DATE	TEST DATE	TEST NAME	ME-TH	BO-OL	VALUE	UNITS	QC PROGRAM
I0510	SS0076	A31503	83193	83195	DBCP	R1	LT	.2	UGL	...QUAN
				83194	DCPD	T1	LT	1	UGL	...NOQC
				83199	DIMP	R1	LT	10	UGL	...QUAN
				N/C	DITH					
				N/C	CPMSO					
				N/C	CPMSO2					
				N/C	ALDRN					
				83199	ISODR	R1		1.2	UGL	...QUAN
				83199	DLDRN	R1	LT	.2	UGL	...QUAN
				83199	ENDRN	R1	LT	.2	UGL	...QUAN
				83194	CHCL3	T1		202	UGL	...NOQC
				83194	CCL4	T1	LT	1	UGL	...NOQC
				83194	C6H6	T1		79	UGL	...NOQC
				83194	CLC6H5	T1	LT	1	UGL	...NOQC
				N/C	CL2BZ					
				83194	MEC6H5	T1	LT	1	UGL	...NOQC
				83194	MTBK	T1		112.	UGL	...NOQC
				83194	XYLEN	T1	LT	.1	UGL	...NOQC
				83194	TRCLE	T1	LT	1	UGL	...NOQC
				83194	TCLEE	T1	LT	1	UGL	...NOQC
				83194	BCH	T1	LT	1	UGL	...NOQC
				N/C	F					
				N/C	CL					
				N/C	CUTOT					
				N/C	ASTOT					
				N/C	HGTOT					
				N/C	CD					
I0511	SS0086	A31504	83193	83195	DBCP	R1	LT	.2	UGL	...QUAN
				83194	DCPD	T1	LT	1	UGL	...NOQC
				83199	DIMP	R1	LT	10	UGL	...QUAN
				N/C	DITH					
				N/C	CPMSO					
				N/C	CPMSO2					
				83199	ALDRN	R1	LT	.2	UGL	...QUAN
				83199	ISODR	R1	LT	.2	UGL	...QUAN
				83199	DLDRN	R1	LT	.2	UGL	...QUAN
				83199	ENDRN	R1	LT	.2	UGL	...QUAN
				83194	CHCL3	T1		127	UGL	...NOQC
				83194	CCL4	T1	LT	1	UGL	...NOQC
				83194	C6H6	T1		40	UGL	...NOQC
				83194	CLC6H5	T1	LT	1	UGL	...NOQC
				N/C	CL2BZ					
				83194	MEC6H5	T1	LT	1	UGL	...NOQC
				83194	MTBK	T1		40	UGL	...NOQC
				83194	XYLEN	T1	LT	.1	UGL	...NOQC
				83194	TRCLE	T1	LT	1	UGL	...NOQC
				83194	TCLEE	T1	LT	1	UGL	...NOQC
				83194	BCH	T1	LT	1	UGL	...NOQC
				N/C	F					
				N/C	CL					
				N/C	CUTOT					
				N/C	ASTOT					
				N/C	HGTOT					
				N/C	CD					

APPENDIX B

SHELL CHEMICAL COMPANY
A DIVISION OF SHELL OIL COMPANY
P. O. BOX 2171
DENVER, COLORADO 80201

July 18, 1980

Colorado Department of Health
Water Quality Control Division
Permits Section
4210 East 11th Avenue
Denver, CO 80220

Gentlemen:

As part of the overall environmental studies of the Shell leased portion of the Rocky Mountain Arsenal, a program to characterize contamination present in storm water runoff has been undertaken. Portions of the data developed from this program were presented at the Colorado Department of Health-Rocky Mountain Arsenal-Shell Chemical Company Technical Review Committee meeting in December 1979.

In this program the locations of runoff sites were identified as shown in Figure 1. With sufficient rainfall or snow melt, water from these sites would reach the following points.

SITE NUMBER	DESTINATION
1, 2, and 6	Rocky Mountain Arsenal, Lake C via the Sand Creek lateral.
3	First Creek via drainage ditch.
4 and 5	Rocky Mountain Arsenal, Basin A.
7 and 8	Rocky Mountain Arsenal, Lower Derby-Ladora Lakes.

The Technical Review Committee agreed it was unlikely water from Sites 1, 2, and 6 ever reached Lake C or that water from Site 3 ever reached First Creek.

A list of potential contaminants was prepared based on our knowledge of past military and industrial operations at the Arsenal. Analytical methods for identification and quantitation of these potential contaminants were developed. The bulk of the analyses has been performed in our plant laboratory using gas chromatographic (GC) instruments equipped with flame ionization, flame photometric, electron capture, or nitrogen

phosphorus detectors. Identification/quantitation was based on elution time/peak area measurements established using authentic samples of the potential contaminants. The development and refinement of GC analytical methods have continued throughout this study to provide analyses of additional contaminants and to lower detection limits. Detection limits vary for different contaminants and range from less than one part per billion (ppb) to about 100 ppb. Many of the analyses were negative. In these cases the data are reported as < (less than) the detection limit for the contaminant.

In addition, some samples were sent to the Shell Development Company laboratory at Modesto, California, for the more definitive gas chromatographic/mass spectroscopic (GC/MS) analysis. This technique provides identification of contaminants with a higher degree of reliability. Under routine conditions the detection limit is about 10 ppb; however, special techniques have been used to confirm identity of selected contaminants at levels below 10 ppb.

MAY 1-3, 1979

A series of samples was taken at Site 5 on May 2-3, 1979, and was analyzed by GC. Rainfall started at 2324 hours on May 1 and ended at 0725 hours on May 3, 1979, with total rainfall of 1.71 inches. Flow at Site 5 represents surface drainage from the major processing area within the leasehold. It is estimated that more than half the storm water exits the leasehold at this point and discharges to the Rocky Mountain Arsenal Basin A. As shown in Table 1 many of the contaminants were not detectable in the initial sample taken about 22 hours after rainfall had started. A few additional contaminants were detected in subsequent samples and the concentration of most contaminants increased with time during runoff. Recent groundwater table elevation data suggest the possibility of infiltration of contaminated groundwater into the buried storm water piping system.

AUGUST 14, 1979

Samples from five runoff sites were obtained during a 0.8-inch rain on August 14, 1979. The results of the GC/MS analyses performed at the Shell Development laboratory are shown in Table 2. Low levels of dieldrin, BLADEX* Herbicide, atrazine, p-chlorophenylmethylsulfone, and benzene were identified in some samples. A significant concentration of chloroform was found at Site 5 but not at the other locations.

*Trademark: Registered U. S. Patent Office

Additional samples were taken in November 1979 and April 1980 when snow melt or rainfall produced flow at the various sites. The GC analyses of these samples are presented in Tables 3-6. For convenience, the data are grouped based on the ultimate destination of flow.

If you have any questions, please contact us to discuss the storm water runoff as it may impact the ongoing programs of Shell and the Army to rectify the groundwater pollution problems at the Arsenal.

Yours very truly,

ORIGINAL SIGNED BY
J. B. PLUMMER

for J. H. Knaus
Plant Manager

GWK/cb

Attachments

cc: Commander
Rocky Mountain Arsenal
Commerce City, CO 80022

bc: Head Office
R. D. Lundahl, Manager, Agricultural Chemicals, Plans & Analysis
T. R. Williams, Manager, Environmental Conservation, Operations
B. D. Little, Attorney, Environment & Labor, Legal
HSES IS (3)

bbc: CF 804-4-5 FOR
Circulating

TABLE 1

GC ANALYSIS OF STORM WATER RUNOFF TO ROCKY MOUNTAIN ARSENAL BASIN A
(All Data In Parts Per Billion)

Site Number	5		
Date	5/2/79	5/3/79	5/3/79
Time	2200	0300	1500
Aldrin	<0.3	<0.3	<0.3
Dieldrin	<0.3	<0.3	0.3
Endrin	<1	<1	<1
DCPD	<10	10	32
p-Chlorophenylmethylsulfide	19	38	61
p-Chlorophenylmethylsulfoxide	<10	<10	<10
p-Chlorophenylmethylsulfone	52	158	285
DBCP	28	66	300
AZODRIN* Insecticide	106	98	746
BLADEX* Herbicide	93	216	189
Atrazine	91	98	42
VAPONA* Insecticide	<10	<10	<10
NUDRIN* Insecticide	<20	<20	<20
MMCAA	2,500	3,600	<20
MSAO	<10	<10	<10
DMP	<10	<10	<10
DMMP	22	21	51
TMPO	34	30	65
BCH	<10	<10	<10
Benzene	<10	49	489
Toluene	<10	26	81
Ethyl benzene	<10	14	57
p & m-Xylene	<10	23	190
o-Xylene	16	32	94
Chlorobenzene	35	387	1,330
m-Dichlorobenzene	14	21	72
p-Dichlorobenzene	156	485	1,478
o-Dichlorobenzene	104	410	1,610

*Trademark: Registered U. S. Patent Office

TABLE 2

GC/MS ANALYSIS OF STORM WATER RUNOFF

AUGUST 14, 1979

CONTAMINANT	SITE NUMBER 1	2	3	4	5
DBCP	ND	ND	ND	ND	ND
VAPONA* Insecticide	ND	ND	ND	ND	ND
Dieldrin	83	(9)	ND	ND	ND
Atrazine	ND	ND	ND	ND	61
BLADEX* Herbicide	16	25	ND	ND	72
Sulfone (SD 13000)	ND	ND	ND	ND	83
Dichlorobenzenes	ND	ND	ND	ND	ND
Hexachlorobutadiene	ND	ND	ND	ND	ND
Hexachloronobornadiene	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	ND	ND	ND	ND	ND
Benzene	26	29	34	40	46
Chloroform	ND	ND	ND	ND	4,400
Carbon tetrachloride	ND	ND	ND	ND	ND
BCH	ND	ND	ND	ND	ND
MIBK	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND

ND = none detected with a detection limit of 10 ppb

*Trademark: Registered U. S. Patent Office

TABLE 3

GC ANALYSIS OF STORM WATER RUNOFF TO ROCKY MOUNTAIN ARSENAL LAKE C
(All Data In Parts Per Billion)

Site Number	1	2	6
Date	4/24/80	4/24/80	4/24/80
Aldrin	5.8	6.2	<0.3
Dieldrin	4.2	16.5	0.8
Endrin	<1	<1	<1
DCPD	<10	32	<10
p-Chlorophenylmethylsulfide	<10	<10	<10
p-Chlorophenylmethylsulfoxide	<10	17	<10
p-Chlorophenylmethylsulfone	<10	10	<10
DBCP	0.56 [1]	0.05	<0.04
Hexachlorocyclopentadiene	0.72	0.04	<0.04
AZODRIN* Insecticide	<100	<100	<100
BIDRIN* Insecticide	<100	<100	<100
CIODRIN* Insecticide	<100	<100	<100
PHOSDRIN* Insecticide	<100	<100	<100
BLADEX* Herbicide	<100	<100	<100
Atrazine	<100	<100	<100
VAPONA* Insecticide	<10	<10	<10
PLANAVIN* Herbicide	-	-	-
NUDRIN* Insecticide	930	57	14
MMCAA	<60	<60	<60
MSAO	31	15	<8
DMP	<50	<50	<50
DMMP	6	381	2
TMPO	18	11	<1
BCH	<10	<10	<10
Benzene	<25	<25	<25
Toluene	<10	<10	<10
Chloroform	14	3	<5
Carbontetrachloride	<3	<3	5
Trichloroethylene	<5	<5	<5
Tetrachloroethylene	<5	<5	<5
Ethyl benzene	<10	<10	<10
p & M-Xylene	<10	<10	<10
o-Xylene	<10	<10	<10
Chlorobenzene	<10	<10	<10
m-Dichlorobenzene	<10	<10	<10
p-Dichlorobenzene	<10	<10	<10
o-Dichlorobenzene	<10	28	<10
DIMP	-	-	-
p-Dithiane	<10	<10	<10

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TABLE 4

GC ANALYSIS OF STORM WATER RUNOFF TO FIRST CREEK
(All Data In Parts Per Billion)

Site Number	3		
Date	11/23/79	4/1/80	4/24/80
Aldrin	<0.3	<0.3	
Dieldrin	1.0	0.9	
Endrin	<1	<1	
DCPD	<10	<10	
p-Chlorophenylmethylsulfide	<10	<10	
p-Chlorophenylmethylsulfoxide	<10	<10	
p-Chlorophenylmethylsulfone	<10	<10	
DBCP	<0.4	<0.04	
Hexachlorocyclopentadiene	<0.4	<0.04	
AZODRIN* Insecticide	<100	<100	
BIDRIN* Insecticide	<100	<100	
CIODRIN* Insecticide	<100	<100	
PHOSDRIN* Insecticide	<100	<100	
BLADEX* Herbicide	<100	<100	
Atrazine	<100	<100	
VAPONA* Insecticide	<10	<10	
PLANAVIN* Herbicide	<100	-	
NUDRIN* Insecticide	<50	<50	
MMCAA	<300	<20	
MSAO	<30	<10	
DMP	<10	<10	<50
DMMP	<10	3	4
TMPO	7	2	4
BCH	<10	<10	
Benzene	<10	<10	
Toluene	<10	<10	
Chloroform	<5	<5	5
Carbontetrachloride	16	166	29
Trichloroethylene	<5	<5	<5
Tetrachloroethylene	<5	12	5
Ethyl benzene	<10	<10	
p & m-Xylene	<10	<10	
o-Xylene	<10	<10	
Chlorobenzene	<10	<10	
m-Dichlorobenzene	<10	<10	
p-Dichlorobenzene	<10	<10	
o-Dichlorobenzene	<10	<10	
DIMP	<1	<1	
p-Dithiane	<10	<10	

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TABLE 5

GC ANALYSIS OF STORM WATER RUNOFF TO ROCKY MOUNTAIN ARSENAL BASIN A
(All Data In Parts Per Billion)

Site Number	4			5		
Date	11/23/79	4/1/80	4/24/80	11/23/79	4/1/80	4/24/80
Aldrin	<0.3	<0.3		<0.3	0.5	<0.3
Dieldrin	<0.3	<0.3		2.4	1.0	2.7
Endrin	<1	<1		<1	<1	<1
DCPD	<10	<10		<10	<10	<10
p-Chlorophenylmethylsulfide	<10	<10		125	<10	<10
p-Chlorophenylmethylsulfoxide	<10	<10		<10	<10	32
p-Chlorophenylmethylsulfone	<10	<10		37	115	70 1/
DBCP	<0.4	<0.04		39	19	11 1/
Hexachlorocyclopentadiene	<0.4	<0.04		<0.4	<0.04	<0.04
AZODRIN* Insecticide	<100	<100		<100	<100	<100
BIDRIN* Insecticide	<100	<100		<100	<100	<100
CIODRIN* Insecticide	<100	<100		<100	<100	<100
PHOSDRIN* Insecticide	<100	<100		<100	<100	<100
BLADEX* Herbicide	<100	<100		<100	186	<100
Atrazine	<100	<100		<100	<100	<100
VAPONA* Insecticide	<10	<10		<10	--	<10
PLANAVIN* Herbicide	<100	-		<100	-	
NUDRIN* Insecticide	<50	<50		1,100	310	28
MMCAA	<300	<20		<300	<20	100
MSAO	<30	<10		60	640	<8
DMP	<10	<10	<50	<10	<10	<50
DMMP	<10	13	1	<10	23	13
TMPO	9	6	<1	32	23	19
BCH	<10	<10		<10	<10	<10
Benzene	<10	<10		20	<10	25
Toluene	<10	<10		<10	<10	<10
Chloroform	5	11	7	1,291	366	1,363
Carbontetrachloride	<3	<3	<3	5	-	<3
Trichloroethylene	<5	<5	<5	<5	<5	<5
Tetrachloroethylene	<5	<5	<5	11	<5	9
Ethyl benzene	<10	<10		<10	12	16
p & m-Xylene	<10	<10		<10	<10	<10
o-Xylene	<10	<10		<10	<10	<10
Chlorobenzene	<10	<10		39	27	11
m-Dichlorobenzene	<10	<10		<10	<10	<10
p-Dichlorobenzene	<10	<10		62	71	27
o-Dichlorobenzene	<10	<10		48	60	208
DIMP	<1	<1		<1	<1	-
p-Dithiane	<10	<10		<10	<10	<10

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1/ Identity confirmed by GC/MS

TABLE 6

GC ANALYSIS OF STORM WATER RUNOFF TO ROCKY MOUNTAIN ARSENAL LOWER DERBY-LADORA LAKES
(All Data In Parts Per Billion)

Site Number	7	8	
Date	4/24/80	4/1/80	4/24/80
Aldrin	0.8	<0.3	
Dieldrin	15.4	<0.3	
Endrin	<1	<1	
DCPD	<10	<10	
p-Chlorophenylmethylsulfide	<10	<10	
p-Chlorophenylmethylsulfoxide	<10	<10	
p-Chlorophenylmethylsulfone	66	<10	
DBCP	<0.04	0.63	0.41 1/
Hexachlorocyclopentadiene	<0.04	<0.04	<0.4
AZODRIN* Insecticide	127	<100	
BIDRIN* Insecticide	<100	<100	
CIODRIN* Insecticide	<100	<100	
PHOSDRIN* Insecticide	<100	<100	
BLADEX* Herbicide	123	<100	
Atrazine	115	<100	
VAPONA* Insecticide	<10	<10	
PLANAVIN* Herbicide	-	-	
NUDRIN* Insecticide	<10	<50	
MMCAA	<60	<20	
MSAO	<8	<10	
DMP	<50	<10	
DEMP	2	<1	
TEPO	2	<1	
BCH	<10	<10	
Benzene	<25	<10	
Toluene	<10	<10	
Chloroform	<5	<5	
Carbontetrachloride	<3	<3	
Trichloroethylene	<5	<5	
Tetrachloroethylene	<5	<5	
Ethyl benzene	<10	<10	
p & m-Xylene	<10	<10	
o-Xylene	<10	<10	
Chlorobenzene	<10	<10	
m-Dichlorobenzene	<10	<10	
p-Dichlorobenzene	<10	<10	
o-Dichlorobenzene	<10	<10	
DIMP	-	<1	
p-Dithiane	<10	<10	

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